1063-15 **Residual Atrial Septal Defect Following Dual Transseptal Catheterization: A Doppler Color Flow Imaging Follow-Up**

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We have observed that dual transseptal catheterization (TC) causes atrial septal defect (ASD) with interatrial shunt after withdrawal of catheters following LA ablation procedure. The present study characterized the magnitude, time course and regression of this residual ASD using AcuNav diagnostic ultrasound catheter with Doppler color flow imaging immediately after TC and at repeat ablation. **Methods and Results**: The study included 47 pts (40 men; age 56±10 yrs) with atrial fibrillation (AF) undergoing dual TC (two 8 Fr Mullins sheaths, TC duration 225±40 min) and AF ablation. In 23 pts we assessed acute ASD size immediately after TC removal (3.5±0.7mm) and at 2min (2.9±0.6mm), 4min (2.8±0.5mm), 6min (2.5±0.7mm), 10min (2.4±0.7mm) and 15-30min (2.4±0.6mm) after TC. There was significant reduction of ASD size within 6min ($p<0.05$) immediately after TC. In remaining 24 pts with repeat ablation for recurrent AF (at 4.8±3.7 months) with 43 residual ASD at end of first procedure, assessment for residual ASD Pre-repeat TC was performed. Residual ASD was detected in 2/2 at 3 days, 5/19 at 1 to 3 months, 6/12 at 4 to 6 months and 0/10 at 7 to 17 months (Table). No residual ASD (35/46, 76%) was detected with follow-up (1-17 months). **Conclusions**: Residual ASD after TC appears to reduce in size (all < 4 mm) during follow-up and may resolve compltely by 7 months.

Table. Follow-up changes in residual ASD size

	Initial Residual	3 days	1-3months	4-6months	7-17months
ASD(mm)	2.6±0.6	3.1±0.3	1.4±0.4	1.5±0.7	0
Range(mm)	1.6-3.9	2.9 & 3.3	0.8-1.9	0.8-2.6	0

1063-16 **Occurrence of Transient ST-Segment Elevation During Pulmonary Vein Ablation for Paroxysmal Atrial Fibrillation in a Prospective Multi-Center Study**

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Paroxysmal atrial fibrillation (PAF) is predominantly triggered by focal ectopies located within the pulmonary veins (PV). The BITMAP Study (Breakthrough and Isolation Trial: Mapping and Ablation of Pulmonary Veins) investigates prospectively the safety and efficacy of a new catheter with circumferential mapping and ablation electrodes. We report the phenomenon of ST-Segment-Elevation during catheter placement in the left atrium (LA) and superior pulmonary veins in this multi-center study. **Methods:** 37 pts. (55±11 years) with recurrent PAF were prospectively included. RFC ablation supported by the 4F REVELATION Helix microcatheter (Cardima Inc., USA) with 8 distal electrodes for bipolar mapping and ablation targeted a total number of 3±1 PV. RFC was applied at the ostial region (max. power 30 W, 45-50°C) with a maximum of 4 RFC per electrode. All patients were adequately anticoaglated (ACT>250) an continuous ECG-Monitoring was performed. **Results:** In 5 out of 37 pts. from three centers we recorded the occurrence of ST-Segment-Elevation >0.2mV and accompanying left thoracic pain. In all 5 cases it was attempted to place the guiding catheter near the superior PVs and thus manipulating the left dorsal wall of the LA. The ECG changes and the symptoms started abruptly and lasted for 5±4 min. Pericardial effusion could instantaneously be excluded by echocardiography in all cases. Coronary angiograms were performed in three pts. with the longest episode, no thrombotic material or air emboli were present. The symptoms and the ECG-changes resolved completely in all pts.
Conclusions: The phenomenon of ST-Segment-Elevation during LA- and PV-Mapping in pts. with PAF is a common occurrence (13.5 %). In this prospective multi-center trial we demonstrated the reversibility of this phenomenon, no cardiovascular or cerebral damages were reported during procedure and follow-up. Although the mechanism is still unclear, vasospasm due to autonomic dysregulation seems to contribute to this phenomenon, because no evidence for air embolism or embolic material was present.

1063-17 **Ostial Locations of Pulmonary Vein Fasicles in Patients With Atrial Fibrillation**

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Background: Segmental ostial applications of radiofrequency energy (RF) have been performed to electrically disconnect the pulmonary veins (PV) in patients with atrial fibrillation (AF).
Objective: To describe the topographic locations of PV fasicles around the circumference of the PV ostia.
Methods: In 85 consecutive patients with AF, 3-4 PV's were isolated. Angiograms of the PVs were obtained. Segmental ostial ablation guided by ostial PV potentials recorded from a circular decapolar catheter was performed with a 4mm-tip catheter. The PV ostium was divided into 4 quadrants: superior, inferior, anterior, posterior. Sites of ostial RF applications were recorded on an ostial quadrant map.
Results: A total of 1393 ostial sites were ablated: 515 in the left superior PV (37%), 348 in the left inferior PV(25%), 465 in the right superior PV (33%), and 65 in the right inferior PV(5%). Among 1393 targeted ostial sites, 419 (30%) were in the superior, 373 (26%) in the inferior, 337 (24%) in the anterior, and 264 (20%) in the posterior quadrants. There were no significant differences in distribution of targeted ostial sites among the PV's, although the posterior quadrant was targeted less often (Table).
Conclusions: During a PV isolation, ~60% of muscle fasicles are in the superior and inferior quadrants of the PV ostia. These observations underscore the importance of complete circumferential mapping of the PV ostia, as PV fasicles may be present in any quadrant.

	Superior	Anterior	Inferior	Posterior	Total#
LSPV	148 (29%)	144 (28%)	136 (26%)	87 (17%)	515 (37%)
RSPV	150 (32%)	84 (18%)	138 (30%)	93 (20%)	465 (33%)
LIPV	107 (31%)	98 (28%)	79 (23%)	64 (18%)	348 (25%)
RIPV	14 (21%)	11 (17%)	20 (31%)	20 (31%)	65 (5%)
Total #	419 (30%)	337 (24%)	373 (26%)	264 (20%)	1393

1063-18 **Acute and Long-Term Results of Radiofrequency Ablation of Common Atrial Flutter and the Influence of the Right Atrial Isthmus Ablation on the Occurrence of Atrial Fibrillation**

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Background: The purpose of this study was to evaluate the acute success rate and long-term efficacy of radiofrequency ablation of common type atrial flutter (AFL) by using a standardized anatomical approach in a large series of patients and to assess the influence of right atrial isthmus ablation on the occurrence of atrial fibrillation. There are no large scale prospective or retrospective multicenter studies for radiofrequency ablation of AFL.
Methods: The study population consisted of 363 consecutive patients with AFL (mean age 58 ± 16 years, 265 men) who underwent radiofrequency ablation at the inferior vena cava-tricuspid annulus isthmus (IVC-TA) using a standardized anatomic approach.
Results: Bi-directional isthmus block at the IVC-TA was achieved in 328 patients (90 %). Following radiofrequency ablation, 343 patients (95 %) were followed for a mean of 496 ± 335 days. During the follow-up period, 310 patients (90 %) remained free of AFL recurrences. Multivariate analysis identified five independent predictors of AFL recurrence: fluoroscopy time ($p<0.001$), atrial fibrillation after AFL ablation ($p = 0.01$), lack of bi-directional block ($p = 0.02$), reduced left ventricular function ($p = 0.035$) and right atrial dimensions ($p = 0.046$). Atrial fibrillation occurrence was significantly reduced after AFL ablation (112 in 343 patients, 33 %) as compared to occurrence of atrial fibrillation before radiofrequency ablation (198 in 363 patients, 55 %, $p < 0.001$).
Conclusion: The current anatomical ablation approach for AFL and criteria for evaluation of the IVC-TA isthmus block is associated with an acute success rate of 90 % and a long-term recurrence rate of 10 %. Radiofrequency ablation of common AFL results in a significant reduction in the occurrence of atrial fibrillation.

POSTER SESSION

1064 MADIT-II and Related Implantable Cardioverter-Defibrillator Issues

Sunday, March 30, 2003, 3:00 p.m.-5:00 p.m.
McCormick Place, Hall A
Presentation Hour: 4:00 p.m.-5:00 p.m.

1064-1 **A Multicenter Study of Heart Failure as a Predictor for Internal Cardioverter Defibrillator Shocks**

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Background: Although left ventricular ejection fraction (LVEF) is a well known predictor of device discharges in patients with internal cardioverter-defibrillators (ICDs), the relationship between discharges and the presence and severity of congestive heart failure (CHF) is less clear.
Methods: We prospectively examined the relationship between presence and severity of CHF symptoms and subsequent risk of ICD discharges for ventricular tachycardia/ventricular fibrillation (VT/VF) among 861 patients who underwent ICD implantation in the Triggers of Ventricular Arrhythmias (TOVA) study. Proportional hazards models were used to test for associations prior to and after adjustment for LVEF.
Results: Baseline CHF was present in 357 (41.5%) patients. Of these, 27% had New York Heart Association (NYHA) class 1 symptoms, 52% had class 2 symptoms, and 21% had class 3 or 4 symptoms. Over an average follow-up of 421 days, 53 patients received an appropriate ICD discharge for VT/VF. Univariate analyses revealed positive associations between baseline CHF and appropriate ICD discharges (RR=1.77; 95% CI,1.03-3.04), particularly among patients with NYHA class 3 or 4 symptoms (RR= 2.37; 95% CI,1.03-5.46). However, after controlling for LVEF and other potential confounders, these relationships were attenuated, and baseline CHF was no longer associated with future appropriate ICD discharge (RR=1.13, 95% CI, 0.6-2.03). However, the risk of discharges remained elevated among patients with NYHA class 3 or 4 (RR=1.89, 95% CI,0.77-4.65), but the association was not statistically significant (p=0.17).
Conclusion: In these prospective data, after controlling for LVEF, the presence of CHF